Los Angeles County
Metropolitan Transportation Authority

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Metro

Metro Sustainability Program

State of California – Water Efficiency Grant

LACMTA - Division 30 – Bldg 5 – Filtration System Upgrade

Project Work Plan

December 11, 2014

The project originated out of the Safety Department due to increased indoor air quality concerns. LACMTA is increasing the use of articulated buses, which are approximately 75% larger than typical bus types. These buses do not fit under the current ventilation system and are not being adequately served by the system. An engineering service request was filed to expand the length of the current system to meet these new buses. The capital program awarded $600,000 to execute the desired project.

LACMTA's sustainability and operations team are acutely aware of the water and energy being wasted by the existing system due to temporary metering that was performed previously. The filtration system uses a wet scrubber system to filter particulates from the ventilation air and then dumps that waster to the sewer. The extension of the system would increase the number or the size of each scrubber increasing energy and water use. There is one major project similar to this in progress at another facility that is planning to use a dry scrubbing system. The sustainability team has persuaded the safety and engineering teams to redesign the system to move from a local ventilation to a source ventilation and a wet scrubber to a dry scrubber. The improved system will be much more resource efficient and reduce lifecycle cost of operation.

The original project's funding will not cover the replacement of the existing system and a total redesign of the ventilation and filtration system. The sustainability program has committed to covering the increased cost of the system's design but is short on funds to cover full construction costs. As a result, this grant application is being filed to help support the construction of the filtration system.

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PROJECT PLAN

The redesign and construction of a new ventilation and filtration system will entail the following major tasks and deliverables.

Pre-Design Study

The project team will develop a study outlining the following key elements of the project:

1. What are the standards and codes that must be met to provide safe working conditions?
2. How do the new buses differ from the old, and how will this affect the type of work being performed?
3. What are the system sizing and flow requirements to meet the established codes and standards?
4. What filtration system performance will be required to match or improve on the previous system and meet those codes and standards?
5. What are the resource and cost savings between different potential and the existing system?

The pre design team will engage with all relevant staff including Safety, Environmental Compliance, Engineering and most importantly Operations to understand all the concerns and desires of each stakeholder. Research will also be performed on best industry practices to understand how others are complying with the same requirement to ventilate body and paint shops.

A Pre-Design Report and Basis of Design (Preliminary Design) document will be produced to guide the design and execution of the project. Using these documents, all key objectives of the project as well as specific requirements will be documented and communicated to the project design team.

Metro is a self-certifying agency and is not bound by the same rules as it relates to permitting and plan check. The project is located within an existing building, which will limit the required approvals necessary. As a result, the project team does not anticipate any issues obtaining environmental compliance or permitting approvals. At this time the project team does not believe there are any CEQA, NEPA, or other environmental compliance requirements based on this scope of work. However, should this understanding change, the project team will react in accordance with the law and obtain approvals using in house staff.

Project Design Phase

LACMTA will first establish a project delivery mechanism, which will have little effect on the total cost but will slightly change the execution of the design phase. Metro will either pursue a Design-Build or Design-Bid Build.

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In the Design-Build scenario Metro's design team made up of in house engineering staff and consultants will prepare a 30% design package.

In the Design-Bid-Build scenario, Metro's design team made up of in house engineering staff and consultants will prepare 100% design package.

The final deliverable for this phase of the project will be a design package consisting of engineering drawings, site information and performance specifications.

Procurement Phase

The project team will develop a scope of work matching the delivery mechanism being pursued and work with both procurement and legal teams to finalize and release a Request for Proposal. The Request for Proposal will outline the project objectives and what is required to successfully complete the project. Given the increased complexity and size of a design-build procurement more effort will be required should that deliver mechanism be pursued.

The project team will facilitate a formal bidders' conference, job walk and question & answer ledger to support development of the bidders' proposals. Once received, the project team will evaluate the proposals and select a contractor for the construction.

Procurement staff will facilitate the contracting process for the winning bidder.

Final Design Phase (Design-Build only)

When executing a Design-Build project, the remaining design takes place after the procurement. The winning bidder is responsible for taking the 30% design package and completing the design (submit 100% design drawings) as well as proposing the specific equipment to be installed.

The LACMTA project team will be responsible for reviewing the design drawings at different stages to ensure the winning contractor is meeting the desired elements of the system.

Construction Phase

The contractor will submit equipment specification and data sheets for approval to the project team. Documents will be reviewed to ensure the specific equipment slated for installation meets the requirements outlined in the design package.

The project team will then oversee construction by the selected contractor including adherence to safety requirements, responding to construction Requests for Information, facilitating progress review meetings and performing inspections.

The contractor will prepare and submit As-Built Construction Drawings for review and record keeping.

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Commissioning Phase

The project team will oversee the commissioning of the system to ensure the system operates as designed and meets the requirements outlined in the performance specifications. Corrective action will be managed as needed if the equipment does not meet expectations. Any changes to the system will require an update to the As-Built Construction Drawings.

The project team will facilitate training sessions with onsite staff to educate employees on the new equipment's operation and maintenance.

The design team will facilitate a close out meeting with all staff to confirm receipt of all necessary documentation.